Ontario

Ministry of the
Environment

Protecting drinking water for small waterworks in Ontario

DISCUSSION PAPER

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Operation Clean Water - Key objectives

The Ontario government's continuing efforts to improve drinking water quality and protect public safety include a number of parallel activities coordinated under Operation Clean Water – a comprehensive action plan to give Ontario residents the cleanest, safest drinking water in Canada. Consultation with Ontarians as we work to achieve this goal, is an important part of Operation Clean Water.

Related initiatives underway include:

- consultations on nutrient management to ensure strict environmental safeguards for agricultural practices;
- consultations on groundwater management which are focused on principles for guiding local decision-making on water allocation, as well as on longer-term water management and conservation approaches;
- inspection of all municipal waterworks to ensure they comply fully with laws intended to protect public health. These inspections are already under way, and will be conducted annually.

Another major component of Operation Clean Water is the government's new *Drinking Water Protection Regulation* for large waterworks. The new regulation is part of the *Ontario Water Resources Act*. It puts into law the Ontario Drinking Water Standards (formerly the Ontario Drinking Water Objectives), which have been updated and strengthened to reflect the most current expertise and procedures in drinking water protection.

Large waterworks and small waterworks - key requirements

Large waterworks: The *Drinking Water Protection Regulation* currently applies to all waterworks that:

- use more than 50,000 litres of water on any day or have the capacity to supply 250,000 or more litres of water per day. This would include municipalities, large hospitals, resorts, large restaurants; or
- systems that serve six or more residences. This would include everything from small private systems to large municipal systems serving hundreds of thousands of people.

Key drinking water protection requirements currently include:

- mandatory sampling and analysis by accredited laboratories;
- notification of exceedances of health-based standards;
- public access to water quality information;
- review of municipal waterworks every three years;
- specification for minimum levels of treatment

Small waterworks: Small waterworks provide less than 50,000 litres on any given day, do not have the capacity to supply 250,000 litres per day, and serve five or fewer residences. This would include a broad range of establishments (as listed in the table below) that use wells or surface water sources such as lakes and rivers for their water supply.

Current drinking water protection measures:

Local Public Health Units throughout Ontario conduct inspections of a variety of facilities, including restaurants, schools, hospitals, day cares, and nursing homes. These inspections are made to ensure compliance with public health legislation. At present, local Public Health Units do not inspect stores (without food service facilities), service stations, boarding houses, churches and rental cottages.

Where establishments are not provided with municipal water, a water sample is generally taken and tested for microbiological parameters. If analysis shows that a standard has been exceeded, the operator of the facility would be advised and appropriate follow-up action would be taken to correct the problem.

Examples of small waterworks

Those serving a small number of people	**Those serving larger numbers of people**	**Those providing water to the public over long periods – for months or even years**
boarding houses gas stations stores inns bed and breakfasts rental cottages	small/medium-sized restaurants camps churches ball parks and stadiums theatres assembly halls country clubs campgrounds motels	small schools small hospitals long-term care facilities day nurseries

Discussing options for regulating small waterworks

A key goal of Operation Clean Water is to ensure a comprehensive approach to protecting drinking water throughout the province. Because small waterworks are not currently covered under the new regulation, it is vital that Ontarians are part of the discussion and decisions about how best to ensure drinking water protection in these smaller systems.

The first step to developing an effective approach for dealing with small waterworks is to identify the overall scope of what protection measures are required. Before discussing some of the specific protection measures that follow below, the first overall key questions we invite your ideas and comments on are:

- ***Should small waterworks be regulated to ensure they provide clean and safe drinking water to the public – if so how? If not, why not?***

- ***Should they be given information tools such as guides on how to sample and test water, training, lists of laboratories, a hotline?***

The questions that need to be asked – and answered

The new *Drinking Water Protection Regulation* addresses a series of actions large waterworks must take, by law, to ensure the safety of the drinking water they provide. These actions can be used as a basis for discussion of how best to proceed in the case of small waterworks. While a number of specific questions are posed below, we encourage you not to limit your comments or ideas.

1. Sampling and Testing

The regulation for large waterworks contains specific requirements for regular and frequent sampling and testing of drinking water by large waterworks. Tests for health-related parameters must be conducted by a laboratory that is accredited to perform these tests. Testing is carried out to address a number of concerns:

- Immediate health risks, e.g., microbiological parameters such as total coliforms, fecal coliforms/E. Coli.

- Long-term health risks associated with extended consumption of drinking water contaminated with chemicals over a long period of time, e.g., benzene, carbon tetrachloride, lead, arsenic.
- Parameters that are not health-related, but are tested to ensure the effectiveness of the water treatment system, e.g., aluminum, hardness or the aesthetic quality of the water, e.g., iron, sulphide.

To determine the appropriate sampling and testing requirements for small waterworks, it is important to balance protecting individuals with ensuring businesses are not subjected to unnecessary cost or regulation.

Questions:

- ***Should there be a regulation to make small waterworks have their water sampled and tested as frequently as large waterworks i.e. 16 times per month? Less frequently?***

- ***Should there be different requirements for different kinds of facilities – for example, should small schools, long-term care facilities and day nurseries be treated differently than other establishments? Or should requirements be based on how much water they supply, or whether they are full-time operations or only seasonal?***

2. Minimum Level of Treatment

Disinfection of water to eliminate disease-causing organisms is the most important step in the drinking water treatment process. The new regulation requires, for large waterworks, that as of December 31, 2002, all drinking water that enters a water distribution system or plumbing must be disinfected through chlorination or an equivalent process. This is consistent with the most stringent practices in other parts of the world.

The minimum treatment for drinking water from a **groundwater** source is disinfection, although an exemption can be applied for if stringent requirements are met. The minimum treatment for drinking water from a **surface water** source is chemically assisted filtration and disinfection, or an equivalent treatment process.

There are costs associated with ensuring this level of treatment. These costs can vary substantially for small waterworks. For example: a small bed and breakfast that has a good well may see costs in the range of $1,000 to $2,000 to install a groundwater disinfection system such as ultra violet disinfection. On the other hand, a medium-sized resort hotel that draws its water from a lake may be required to spend more than $100,000 for their

treatment work since it would involve larger usage of water, and filtration in addition to disinfection.

Questions:

- ***Should consideration be given to the size and type of establishment when determining the level of treatment required?***

- ***Should small waterworks be required to filter all surface water provided for the public for drinking?***

- ***Should an exemption from disinfection be provided to small waterworks that use groundwater sources that demonstrate safe drinking water?***

3. Keeping the Public Informed

Since Ontarians are entitled to know about the quality of the water they consume, the new regulation directs large waterworks owners to make information about the quality of their water readily accessible to the public.

Question:

- ***What would be the most useful way for small waterworks to provide information about their water to the public, e.g., on request, posted in a visible location?***

In all cases where drinking water has not been tested, or where the drinking water does not meet acceptable standards and corrective action has not been taken, large waterworks owners must post public notices in prominent locations where they are clearly visible to the public.

Question:

- ***Should small waterworks owners be given the option of not testing their water, and avoiding measures to correct any potential problems? Should they instead be allowed to post a warning sign indicating that the water has not been tested?***

4. Notifying Authorities about Water Quality

Under the new *Drinking Water Protection Regulation,* when test results indicate problems, the laboratory that conducted the tests must immediately inform the Ministry of the Environment, the local Medical Officer of Health and the owner of the waterworks. The ministry believes

that this requirement is fundamental to public safety, and should be included in any regulation that deals with drinking water quality.

Question:

- ***What kinds of test results should be reported – "unsafe" results only or all "adverse" or "abnormal" results?***

How to provide comments

The Ministry of the Environment is interested in hearing from you. Your comments and suggestions are an important part of our work as we move forward in our efforts to ensure that the people of Ontarian continue to have among the safest drinking water in the world.

In addition, over the next 90 days, Environment Minister Dan Newman will consult with small waterworks owners on a range of important drinking water quality and safety issues.

Thank you for taking the time to read this discussion paper. The ministry looks forward to receiving your input on this important issue. Please send your comments and suggestions by **November 15, 2000**, to:

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Further information on the Drinking Water Protection Regulation and Operation Clean Water is available on the Ministry of the Environment Web site at www.ene.gov.on.ca. Or contact the ministry's Public Information Centre, toll-free at 1-800-565-4923. In Toronto call (416) 325-4000.

Supplementary information

The following chart represents the approximate costs associated with the minimum sampling requirements under the Drinking Water Protection Regulation for large waterworks.

Parameter	**Frequency**	**Average Cost/year**
Immediate health risk Microbiological	16/month	$2,220.00
Long-term health risk Pesticides +PCB	quarterly	$2,000.00
Fluoride	annual unless adding fluoride	$20.00
Inorganics and lead	inorganics every three years and lead annually	$40.00
Nitrate + nitrate	quarterly	$80.00
Volatile organics	quarterly	$280.00
Total		**$4,640.00**

Explanation of terms

Fecal coliform bacteria is a well known example of a microbiological parameter. The presence of fecal coliforms in drinking water is an indication of drinking water contamination by human sewage or animal manure.

Turbidity or cloudiness in water is caused by the presence of tiny particles from matter such as clay, silt, spores, plankton and other micro-organisms. Particles can often protect bacteria from being killed by disinfection chemicals such as chlorine.

Maintaining **chlorine residual** in the pipes that go to the consumer protects the quality of the water. The absence of chlorine residual is an immediate indication of potential water quality or treatment process concerns.

Volatile organics are chemicals that usually evaporate in the air, but can also be dissolved in water. Trichloroethylene, a chemical commonly used in dry cleaning, is an example of a volatile organic.